Materials Science and Technology

Author Index

Vol. 11, 1995

Abadal, G. 85
Abbott, K. 572
Abril, E. J. 72
Abstreiter, G. 407
Abushosha, R. 474
Acciarri, M. 665
Acosta, P. 112
Aguiar, R. 46
Aguilar, M. 72
Ahmed, M. 619, 1281
Akbari, G. H. 1261
Almendra, A. 1215
Ammermann, D. 845
Anderson, S. 611
Andersson, J.-O. 276
Apetz, R. 421, 425
Arena, C. 827
Argent, B. 1301
Arias, J. 1191
Armigliato, A. 400
Arnberg, L. 1099
Artús, L. 1203
Aseev, A. 1194
Aymerich, X. 85
Ayub, H. 1281
Azam, M. 619

Babu, S. S. 186
Bacci, T. 351
Bächer, I. 181
Bäckerud, L. 1099
Baeumler, M. 840
Bahrami, F. 488
Baker, T. N. 883
Balboni, R. 400
Barbolla, J. 1074, 1191
Barniol, N. 85
Bate, P. S. 1104
Bayati, H. 118, 284, 776, 908, 1007
Bean, J. C. 66
Belzunce, F. J. 252
Bergengren, Y. 1275
Betran, E. 707
Bhadeshia, H. K. D. H. 105, 109, 874, 1046, 1116, 1129
Biletsky, A. K. 1310
Biletsky, D. A. 1310
Binetti, S. 665
Black, K. A. 90
Boatner, L. A. 939
Bonar, J. M. 31
Bonard, J.-M. 1079
Bonnaud, O. 1207
Brablec, A. 1065
Briand, D. 1207
Brianza, A. 665
Brooks, A. J. 370
Brown, P. D. 54
Brown, S. G. R. 200, 370
Bruce, N. 200
Brunner, J. 407
Bühlmann, H.-J. 1079
Bürkner, S. 840
Bushby, R. S. 643, 753

Calero, J. A. 810, 1052
Calvo-Barrio, L. 1187
Campmany, J. 707
Cané, C. 85
Cantor, B. 741
Cao, W. 967
Carius, R. 425
Carline, R. T. 416
Castán, E. 1074
Castex, L. 967
Caymax, M. 429, 1065
Chacon-Nava, J. G. 1180
Chai, G. 1099
Chang, E. 933
Chang, L. C. 105, 874
Charles, J. A. 538
Charlier, J. 174
Cho, W. 1147
Choh, T. 357, 1246
Choi, Y. H. 3
Chou, C. P. 600
Chou, T. S. 1129
Clarke, G. P. 370
Clauws, P. 429
Clement, M. 1215
Cook, S. G. 1093
Corbel, C. 1223
Correia, A. 691
Corticelli, F. 400
Costa, J. 707
Cottrell, A. H. 97, 100, 209, 329
Cowan, J. R. 1104
Crean, M. 80
Cree, A. M. 566
Crouch, M. A. 1083
Crowther, D. N. 474
Cullell, J. 294
Cuscó, R. 1203

Dai, J. Y. 529
Dartnell, N. J. 80
David, S. A. 186, 939
Davidson, J. A. 696
Davies, P. 1315
Däweritz, L. 820
Daymond, M. R. 228
Dean, T. A. 143, 803
de Benito, G. 72
DebRoy, T. 186
Dieker, C. 410, 421, 425
Dinsdale, K. 1315
Dobaczewski, L. 1071
Dong, Z. 961
Dubois, M. 264
Dueñas, S. 1074
Durrant, G. 741

Eijkemans, T. J. 41
Eisele, I. 407
Elliott, R. 118, 284, 776, 908, 1007, 1241
Enríquez, L. 1074
Erzgräber, H. B. 676
Evans, J. H. 696

Farman, M. 619
Farrar, R. A. 759
Fathallah, R. 967
Faulkner, R. G. 566
Fearis, W. 363
Fedina, L. 1194
Fernández, J. M. 396
Fernández, B. 252
Fernández, M. 1210
Ferry, M. 633, 734
Fierro, J. L. G. 711
Fiset, M. 264
Flemig, G. 840
Fletcher, A. J. 322, 375
Flewitt, P. E. J. 572
Fornari, R. 1223
Forsyth, P. J. E. 1025
Frabboni, S. 400
French, P. J. 36
Froes, F. H. 1156
Frommeyer, G. 112
Fuji, A. 383
Fukuyama, S. 914

García, S. 1203
Garrido, B. 1219
Gasem, Z. 159
Gaubas, E. 670
Gay, N. 703
Ghisoni, M. 50
Gjengedal, R. 469
Glowatzki, K.-D. 1060
Gondermann, J. 407
González-Díaz, G. 1203
Goßner, H. 407
Goudena, E. J. G. 36
Greasley, A. 163
Greef, R. 80
Griffiths, W. D. 322
Grushko, O. E. 926
Guerrero-Lemus, R. 711
Guilemany, J. M. 810, 961, 1052
Gupt, K. M. 1306
Guraya, T. 595

Hadam, B. 407
Haddab, Y. 1079
Hail, D. J. 416
Hannant, D. J. 853
Harris, S. J. 237, 893
Hart, L. 50
Hartmann, A. 410, 421, 425
Hashmi, F. H. 1281
Hawkins, I. D. 1071
Hayama, K. 429
He, J. 914
He, X. 3
Hendry, A. 488
Hennaut, J. 174
Higashi, K. 1295
Higginson, R. L. 1104
Hippsley, C. A. 998
Hodgson, P. D. 548
Hogan, L. M. 441
Höhne, M. 680
Holý, V. 1065
Hong, C.-P. 1147
Hosea, T. J. C. 416
Hsu, C.-H. 765
Hua, L. 499
Huang, C. 143
Hubert, O. 482
Hug, E. 482
Hull, R. 66

Humphreys, A. O. 450
Humphreys, C. J. 54
Humpston, G. 1161
Hutchinson, W. B. 1104

Ikumura, S. 1174
Ilegems, M. 1079
Iwasaki, H. 1295

Jacobson, D. M. 1161
Jain, A. 799
Janssens, K. G. F. 66
Jaraiz, M. 1191
Jen, C. K. 1169, 1174
Jiménez, C. 1210
Jiménez, J. A. 112
Jiménez-Leube, J. 1215
Jonas, J. J. 1139
Joyce, B. A. 396
Juda, U. 680
Julien, M. G. 1233

Kagawa, A. 515
Kanetake, N. 357, 1246
Kaniava, A. 670
Kao, S.-T. 933
Karimi Taheri, A. 1139
Karjalainen, L. P. 557
Karlsson, L. 276
Karnezis, P. A. 741
Kato, H. 1035, 1287
Kellie, J. L. F. 1315
Kern, P. 80
Khan, A. Q. 1281
Khan, Z. 159
Kim, K. B. 629
Kim, S. 1147
Kim, Y. C. 383
Kimerling, L. C. 90
King, J. E. 1093
Kington, A. V. 268
Kluken, A. O. 469
Knutsen, R. D. 611
Korichi, S. 901
Köster, T. 407
Kowalsky, W. 845
Krawczyk, S. 1223
Krishna Rao, P. 1306
Krüger, D. 1060
Kuběna, J. 1065
Kurz, H. 407
Kusanagi, S. 685

Lai, M. O. 955, 1041
Langdon, T. G. 1295
Larkins, E. C. 840
Larsson, M. 1275
Le Bihan, F. 1207
Lee, S.-C. 765
Lee, W. Y. 955, 1041
Lee, Y.-W. 933
Lei, T. C. 520, 529
Lhorte, A. 691
Li, C.-H. 650
Li, S. X. 1253
Li, Z. 363
Li, Z. M. 347
Lian, S. 499
Liang, G. X. 347
Líbezný, M. 1065
Lim, L. C. 949, 955, 1041
Lin, J. 1035
Lin, Y. C. 600
Lisbôa, O. 1169
Little, J. A. 1093
Liu, X. 469
Llorente, C. 72
Lloyd, N. S. 80
Long, M. 150
Loo, R. 421, 425
López, C. 835
López, M. 72
Lora-Tamayo, E. 1074
Loretto, M. H. 143
Lorimer, G. W. 776, 1007
Löser, W. 181
Lu, W.-H. 441
Lucchini, E. 605
Lüth, H. 410, 421, 425
Lynch, S. 80
Lyne, A. T. 566

Mabuchi, M. 1295
Maccagno, T. M. 1139
MacKay, D. J. C. 1046
Maes, H. E. 66
Mahajan, Y. R. 167
Malvezzi, F. 400
Mamuzich, I. 312
Manolatos, P. 299
Marco, S. 1219
Marqués, L. A. 1191
Marshall, G. J. 1015
Martil, I. 1203
Martin, J. M. 1203
Martin, J. W. 450
Martínez-Duart, J. M. 711, 1210
Martinuzzi, S. 703
Maschio, S. 605
Matsumura, A. 396
McLean, A. 1169, 1174
Melander, A. 1275
Meseguer, F. 835
Michel, J. 90
Mintz, B. 474
Miodownik, M. A. 450
Mishra, R. S. 341
Misra, R. D. K. 1306
Miyazawa, K. 130
Mokler, S. M. 396
Molinari, A. 351
Montserrat, J. 1074, 1187
Morante, J. R. 707, 1187, 1219
Moreno, J. A. 1219
Moreno, J. D. 711
Morenza, J. L. 46
Morgenstern, G. 1060
Moskovic, R. 572
Motoyasu, G. 1169, 1174
M'saad, H. 90
Mufti, N. A. 803
Mundra, K. 186
Munroe, P. R. 633, 734

Nai-yong Tang, D. R. F. 870
Nakao, Y. 304
Nam, S. W. 921
Nanver, L. K. 36
Nasim, I. 619, 1281
Nasseri, M. 375
Nijs, J. 1065
Nilsson, J.-O. 276
Noble, B. 237, 893
Noble, F. W. 268
Nomura, M. 1246
Norga, G. J. 90
North, T. H. 363, 383
Novikov, I. I. 926
Nuban, F. 1223
Nutting, J. 961

Ocina, J. R. 595
Ohno, A. 1174
Ohta, Y. 515
Ohtsuka, H. 109
Ohyama, H. 429
Okawa, T. 245
Okumura, S. 1174
Olefjord, I. 650
Ortner, S. R. 998
Othmezouri, J. 174
Ourdjini, A. 1241
Ouyang, J. H. 520
Ozaki, M. 357

Palmer, I. G. 237
Palmiere, E. J. 741
Pandey, M. C. 341
Pantelis, D. 299
Park, D. S. 921
Parker, G. J. 31
Parker, J. D. 200, 1267
Parry, G. 50
Paz, D. I. 72
Peaker, A. R. 696, 1071
Pei, Y. T. 520
Pelaz, L. 1191
Pereira, R. 41
Pérez-Casero, R. 1210
Pérez-Murano, F. 85
Pérez-Rigueiro, J. 1210
Pérez-Rodríguez, A. 1187
Pichaud, B. 691
Pichon, L. 1207
Pickering, C. 416
Pizzini, S. 665
Ploog, K. H. 820
Ponthiaux, P. 299
Poortmans, J. 429, 1065
Prado, J. M. 294
Prasad, Y. V. R. K. 167
Priestner, R. 901
Prokes, S. M. 389
Pujol, A. 294
Purdy, G. R. 1233
Py, M. A. 1079

Qian, Y. 696
Quintanilla, L. 1074, 1074
Quoirin, J. B. 691

Raabe, D. 455, 461, 985
Rack, H. J. 150
Radhakrishna Bhat, B. V. 167
Raghunathan, V. S. 729
Ralston, J. D. 840
Ramakrishna Rao, V. 1306
Ranganathan, S. 729
Rappaz, M. 939
Rawlings, R. D. 863
Razeghi, M. 3
Reed, R. C. 611
Ritter, G. 1060
Roberts, C. 50
Robinson, J. M. 611
Rodriguez, C. 252
Rodríguez, T. 1215
Romano-Rodríguez, A. 1187, 1194
Rompf, C. 845
Roshan, H. Md. 167
Roskos, H. G. 407
Rothemund, W. 840
Rotondaro, A. L. P. 670
Roucoules, C. 548
Roura, P. 707
Roy, M. 791
Ruano, O. A. 112
Rubio, J. E. 1191
Ruggiero, M. A. 136
Rui Wu 579

Ruiz, O. 1219
Rutter, J. W. 136, 1233

Sadeghi Sarabi, R. 317
Sadli, S. 533
Sakuma, T. 130
Samitier, J. 1219
Sánchez, F. 46
Sánchez-Dehesa, J. 835
Sandhu, K. S. 1083
Sandhu, S. 1156
Sandström, R. 579
Sangha, S. P. S. 1161
Sanz-Hervás, A. 72
Sanz-Maudes, J. 1215
Sardin, G. 707
Saritas, M. 696
Sarret, M. 1207
Satka, A. 827
Satya Prasad, V. V. 1306
Savigni, C. 665
Schinnerling, S. 181
Schittenhelm, P. 407
Schmalz, K. 676
Schubert, Th. 181
Scott, V. D. 643, 753
Sekiguchi, T. 685
Sellars, C. M. 1261
Shen, B. 685
Shen, X. P. 893
Shieh, Y. N. 863
Shinozaki, K. 304
Shipway, P. H. 1116
Shlomchack, G. G. 312
Shrivastava, S. 799
Singh, S. P. 341
Singh, V. B. 317
Smith, D. J. 1253
Smith, G. C. 538
Sobolev, V. V. 810, 1052
Soda, H. 1169, 1174
Solberg, J. K. 469
Spangenberg, B. 407
Spittle, J. A. 533
Sriramamurthy, A. M. 341
St John, D. 787
Stack, M. M. 1180
Staton-Bevan, A. E. 1083
Stavrinou, P. 50
Stemmer, M. 703
Stoemenos, J. 80
Stone, H. E. N. 1312
Stone, I. C. 213, 222
Stott, F. H. 1180
Straffelini, G. 351
Stratford, G. C. 1267
Stuck, R. 80
Sulimov, N. A. 707
Sumino, K. J. 657, 685
Sun, C. J. 3
Sunaga, H. 429
Sundararajan, G. 791
Sundararaman, D. 729
Svensson, L.-E. 1046

Takami, Y. 429
Tan, L. 538
Tang, N.-Y. 870
Tarey, R. D. 799
Tarricone, L. 827
Tartera, J. 294
Tesi, B. 351
Tillack, B. 1060
Tirupataiah, Y. 791
Tissandier, A. 299
Tomita, Y. 245, 259, 335, 508, 994
Torng, S. 130
Törnqvist, M. 1223
Trowsdale, A. J. 237
Tsakiropoulos, P. 213, 222, 717, 977, 1156
Tung, S. K. 949

Upadhyaya, D. 1156
Urcola, J. J. 595

Vaitkus, J. 670
Van der Biest, O. 66
van Es, C. M. 41
Van Hove, M. 41
Van Landuyt, J. 1194
Van Rossum, M. 41
Van Zeijl, H. W. 36
Vandini, M. 696
Vanhellemont, J. 66, 400, 429, 670, 1065, 1194
Varela, M. 46
Vescan, L. 410, 421, 425
Vève, C. 703
Vevecka, A. 109
Vitek, J. M. 186, 939
Vodopivec, F. 312

Wagner, J. 840
Wan, C. C. 589
Wang, E. D. 347
Wang, J.-H. 650
Wang, R.-Y. 441
Ward, J. A. 1015
Ward-Close, C. M. 1156
Warren, R. 650
Webster, P. D. 803
West, D. R. F. 863
Weyher, J. L. 1223
White, J. 237
Whiteman, J. A. 1261
Whiting, M. J. 717, 977
Wickenhäuser, S. 421
Wild, R. K. 572
Wilson, E. A. 1110
Withers, P. J. 228
Witusiewicz, V. T. 1310
Wolter, J. H. 41
Wood, J. V. 1315

Xie, M. H. 396
Xu, L. 787
Xue, H. 883

Ye, F. 529
Ye, J. H. 85
Yeh, S. H. 589
Yi, D.-Q. 650
Yokogawa, K. 914
Yong, C. 1287
Yoon, E. P. 629

Zaumseil, P. 1060
Zhang, J. 396
Zhang, Z. 759
Zhou, Y. 520, 529

Subject Index

Vol. 11, 1995

Abrasive wear 787
Acicular ferrite 759
Acoustic characterisation 1174
Aging 998
Alloy additions 252, 259, 883, 893
Alloyed ductile irons 118, 284, 776, 908, 1007
Almen intensity 967
Alumina 629, 633, 734, 863, 1287
Aluminium 643, 883, 1015, 1104, 1174, 1287
Aluminium alloys 163, 213, 222, 228, 299, 357, 363, 1161, 1246, 1312
Al–Cu 1174
Al–4·5Cu 933
Al–Cu–Li 926
Al–Cu–Ti 1099
Al–Li 237
Al–2·5 Mg 159
Al–Mg–Si 1295
Al–Si 441, 1301
Al–7Si 741
Al–12Si–1Cu–1Mg–2Ni 629
Al–Si–Sb 1241
Al–Si–Ti 1099
Al–Ti–B 533
Al–Zn–Mg 921
LM21M 803
LM6M 803
2000 series 633, 734
2124 753
5032 H32 600
6061–Al_2O_3 167
7010 1025
Aluminium based brazes 1161
Amorphisation 347
Annealing 41
Anodising 1025
Aspect ratios 759
Atomic force microscopy 85, 109
Auger analysis 572
Auger recombination 425
Austempered ductile irons 294
Austempering 765, 776, 901, 908, 994, 1007
Austempering kinetics 118, 284, 1007
Austenite 998, 1261
Automatic measuring 1310
Automotive filters 605
α_2 phase in titanium aluminide alloys 150

Bainite 245, 259, 874, 1116
Bainite mechanism 105
Banded microstructure 1233
Barkhausen noise 264
Bayesian neural network modelling 1046
Bimetallic materials 595
Bipolar processing 36
Bismuth 136
Body centred cubic metal 455
Bonding 97, 100, 209, 329, 643, 753
Braze quality control map 955
Brazing 949, 955, 1041, 1161
Brittle intergranular fracture 998

Calcum treatment 508
Carbides 97, 100, 209, 329, 566
Carbon 853
Carrier lifetime 670
Case depth 264
Casting 533, 1099
Cast irons 118, 284, 294, 765, 776, 893, 901, 908, 1007
Cathodoluminescence 1079
Cavitation 341, 1295
Cavitation erosion 611
Cavity nucleation 579
Cellular automaton simulation 370
Cellulose 853
Cement 853
Cementite 566
Ceramic matrix composites 529
Ceramics 130, 174, 605, 863, 1093
Ceria 130
Charge carrier lifetimes 680
Charpy impact properties 508
Chemical driving force in iron 1110
Chemical vapour deposition 31, 1060
See also Low pressure chemical vapour deposition, Plasma enhanced chemical vapour deposition
Chill modification 1241
Chlorine free growth 31
Chromium carbide 515
Coarsening 566
Cohesion 97, 174, 209
Cohesive energy 100
Cohesive energy of carbides 329
Cold rolling 1281
Compacted graphite cast irons 765
Complex impurity defect structure 680
Composite plating 589
Composites 643, 853
See also Ceramic matrix composites, Metal matrix composites, Surface composites
Compound materials 1074
Computer simulation 222
Concrete 853
Constitution 863
Constrained cavity growth model 579
Constrained regularisation method 1071
Continuous casting 1169, 1174
Convergent beam electron diffraction 400
Copper 676
Copper alloys 643
Copper–chromium alloys 1306
Copper phase morphology 538
Cordierite 605
Cored rod 1174
Corrosion 1025
Corrosion resistance 1180
Corrosive environments 159
Covalent bonding 97
Creep 163, 341, 579, 998, 1147
Creep and fracture behaviour 1267
Creep rupture 304
Critical thickness 1079
Crystal growth 939
Crystals 441
Crystal structure 329
Czochralski growth 665

Deep level defects 429
Deep levels 1074
Deep level transient spectroscopy 670, 676, 696, 1071, 1079
Defect concentration 676
Defect control 657
Defect reactions 657, 670
Defects 696, 1071, 1074
{113} defects 1194
Deformation 167, 252, 357, 455, 461, 548, 1246
Deformation bands 914

Deformation zone 312
Dendrites 1099
Dendritic growth 370
Density of states 100
Desulphurisation 508
Devices 3, 31, 429
Diffusion 643, 753
Diffusion bonding 1035
Diffusion control mechanism for coarsening 566
Diffusion length 665
Directional solidification 341
Dislocations 657, 685, 691, 914
Dissimilar friction welding 383
Doping 1060
Dry sliding wear 294
Ductile irons 893
Ductile to brittle transition temperature 335
DX centres 1074
Dynamic precipitation 1295
Dynamic recovery 633
Dynamic recrystallisation 548

Elastic moduli 1253
Electrical activity 685
Electrical characterisation 696
Electric field interaction 1074
Electrodeposition 317
Electrograining 1015
Electroluminescence devices 845
Electron beam induced current 685
Electron beam synthesis 619
Electron beam welding 939
Electron diffraction contrast imaging 66
Electronic transport 41
Electron irradiation 1194
Electron microscopy 400
Electron paramagnetic resonance 680
Electroslag casting 1306
Ellipsometry 80, 1065
Embedding 1169
Embrittlement 1306
Energy dispersive X-ray analysis 222
Epitaxial growth 31
Epitaxial layers 1065
Epitaxy 421, 429, 845
see Molecular beam epitaxy
Equiaxed ferrite 1110
Erosion 791, 1180
Eutectics 538, 1241
Eutectoid 717
Eutectoid transformation 977

Fatigue 159, 1275
Fatigue cracking 921
Fatigue life predictions 159
Ferrite 1261
Ferromagnetism 482
Fibres 853
Field induced oxidation 85
Filler metal 949
Finite element model 228
Finite element modelling 383, 595
Finite size pads 421
Forging 143, 357
Fourier transform infrared spectroscopy 703, 1219
Fracture 237, 1246
Fracture toughness 252, 294, 335, 765
Friction 312

Galvanising 870
Gap width precracking 949
Gettering 691
Glass 853
Glass substrates 1207
Gleeble simulator 557
Gold 1083
Grain boundary 921
Grain refinement 533
Grain size 1099, 1261
Growth 3
Growth kinetics 977

Hardening depth 264
Hardfacing 515
Hardness 317, 515
Heat transfer 375, 810
Heat transfer model 322
Heat treatment 143, 245, 259, 322, 335, 357, 508, 741, 787
Heterojunction bipolar transistors 1083
Heterostructures 400
High electron mobility transistors 1079
High strain rate 1295
High temperature 1180
High velocity oxyfuel spraying 810, 961, 1052
High voltage transmission electron microscopy 1194
Hole drilling 600
Hot cracking 926
Hot deformation 734
Hot ductility 474
Hot rolling 461
Hot working 167, 548, 633
Hydrogen 317
Hydrogenation 1207

Impact toughness 1046
Impurity concentration 676
Impurity defects 657
Impurity free interdiffusion 840
Inclusion character 186
Inclusion formation 186
Indentation cracks 1093
Indium 136
Ingot casting 237
Inhomogeneity 985
In line monitoring 90
***In situ* doping** 1207
Integrated circuit processing 36
Intercritical annealing 994
Interdiffusion 389
Interface debonding 1246
Interface reactions 629
Interfaces 1156
Interface structure 529
Interfacial bonding strength 629
Interfacial properties 1310
Interfacial reaction 1287
Interfacial strain fields 729
Interfacial structure 1035
Intergranular cleavage fracture 572
Intermetallics 143, 150, 650, 1147
Internal stress 228
Interrupted testing 579
Ion beam synthesis 1187
Ion implantation 799, 1074, 1187, 1191, 1203
Ion nitriding 351
Iron aluminides 650
Iron and iron alloys 109, 304, 515, 1110
See also Cast irons, Steels
Iron complexes 670
Iron solubility limit 870
Island growth 425
Isoelectric centres 676
Isolation structures 400

Joining 643, 753, 1161

Kinetics 186, 776, 874, 908

Laplace transform DX centres 1071
Laser and modulator structures 840
Laser cladding 520
Laser melting 515

Laser patterning 46
Laser processing 863
Lasers 66
Laser surface melting 611
Laser surface treatment 299
Lattice strain 400
Layer growth mechanism 441
Lead–copper alloys 538
Ledge mechanism 717, 977
Light beam induced current 703
Linear shrinkage (at casting) 926
Liquid metals 1310
Liquid phase sintering 650
Liquid phase bonding
see Transient liquid phase bonding
Lithium 237, 926
Lithography 1015
Low cycle fatigue 921
Low dimensional semiconductor structures 835
Low energy implantation simulation 1191
Low frequency noise 1079
Low pressure chemical vapour deposition 31, 410, 421, 1207
Low temperature oxide layers 1219

Machining defects 1025
Macrovoid formation 1041
Macrovoids 955
Magnesia 863
Magnetic materials 665
Magnetic properties 1281
Manganese 118, 284, 1007
Maraging 1281
Martensite 109, 245, 259, 488
Martensite mechanism 105
Massive ferrite 1110
Material properties 3
Mathematical simulation 810, 1052
Mechanical alloying 347, 1129
Mechanical properties 112, 237, 245, 259, 284, 304, 357, 363, 488, 595, 600, 741, 883, 893, 908, 1007, 1253
Mechanical stabilisation 1116
Mesa 407
Metadynamic recrystallisation 548
Metal contaminants 90
Metal contamination 670
Metal fabrication 1161
Metallography 893, 1025
Metal matrix composites
aluminium based 163, 167, 213, 222, 228, 299, 357, 363, 629, 633, 643, 734, 741, 753, 1246, 1295, 1301
nickel based 520, 589
steel based 1315
titanium based 1156
Metastable phases 181
Microalloying 252, 469, 893
Microelectronics 85
'Microelectronics, materials for'
Editorial 1
Materials and devices processing 3–49, 1207–1228
Structural characterisation 50–84
Surface characterisation 85–94
Silicon–germanium alloys 389–436, 1060–1070
Defects in silicon 657–706
Photonic materials 707–715, 845–848
Low dimensional structures 820–844
Electrical characterisation 1071–1088
Ion beam, implantation, and irradiation processes 1187–1206
Microshadow mask 407
Microstructural stability 901
Microstructure 130, 136, 181, 213, 222, 237, 317, 357, 488, 734, 914, 985, 1015, 1246
Minority carrier diffusion length 703
Modelling 469
Molecular beam epitaxy 396, 407, 820
Monolayer doping 820
Morphology of silicon 441
Multiphase microstructure 499
Multiple quantum well 50, 827, 840

Nanoparticles 707
Nanostructures 425
Nanotechnology 85
Net shape 1169
Nickel 317, 520, 589, 759, 791
Nickel alloys 347
Nickel based brazes 949, 955
Nickel based filler metals 1041
Nickel based superalloys 341, 450, 595, 914, 1253
Niobium 469
Niobium carbide 100
Nitriding 901
Nitrogen 488, 729, 799
Non-metallic inclusions 508
Non-stoichiometry 100
Numerical modelling 482

Ohmic contacts 1083
Ohno continuous casting 1169, 1174
Optical and electronic properties 835
Optical constants 1065
Optical fibres 1169
Optical modelling 312
Optical properties 41, 80
Optoelectronics 711
Order–disorder 109
Ordering 97
Ordering in carbides 100
Organic molecular beam deposition 845
Organic solvent 317
Orientation dependence 1253
Orientation distribution function 985
Orthorhombic phase 143
Ostwald ripening 566
Overview 717, 853
Oxide dispersion strengthening 304, 450, 1129
Oxygen 665, 680, 703, 759

Palladium 1083
Partial melting 1295
Particle fracture 1246
Particle injection laser process 299
Particle segregation 363
Passivation 41
Patterned substrates 410
Pearlite 717, 977
Peritectic 1233
Phase diagram 870
Phase stability 150
Phase transformation 130, 150, 499
Phosphorus segregation 572
Phosphosilicate glasses 1219
Photocurrent spectroscopy 50
Photodetectors 845
Photodissociation 670
Photoelasticity 312
Photoluminescence 41, 407, 421, 425, 676, 707, 711, 1203
Photoreflectance 416
Pitting corrosion 276
Plane front solidification 1233
Plane strain fracture toughness 294
Plasma enhanced chemical vapour deposition 707
Plasma nitriding 351
Plasma sprayed deposits 174
Plasticity in crystallised range 926
Plasticity modelling 228
Plastic strain 383, 482
Plating 589
Platinum 680
Platinum silicide 691
Point defects 1194, 1223
Polymer quenchants 322
Polypropylene 853
Polyvinyl alcohol 853
Porosity 933
Porous cordierite 605
Porous silicon 711
Positron annihilation 1223

Powder 707
Powder extrusion 357, 1246
Powder metallurgy 112, 213, 222, 347, 351
Prebonding 1035
Precipitate free zone 921
Precipitation kinetics 469, 729
Preplacement technique 955, 1041
Pressure effect 1287
Pressure quench casting 803
Processing map 167
Processing window 118
Punching 482

Quantum dots 407, 410, 421, 425, 820
Quantum well 407
Quantum wires 407, 410, 421, 820
Quench aging 1139
Quenching 322, 375, 883

Radiation damage 429
Raman characterisation 1203
Rapid thermal annealing 1203, 1210, 1215
Reaction bonding 1287
Reaction kinetics 1156
Reactive ion etching 85
Recombination 670
Recombination centres 696
Recovery 41
Recrystallisation 469, 548, 557, 1104, 1129, 1295
Recrystallisation kinetics 734
Reinforcement 853
Residual copper 474
Residual nickel 474
Residual stress 383, 600, 967
Resistivity measurements 729
Restoration 557
Retained austenite 245, 259, 874
Robust data analysis 200
Rod 1174
Rolling 252, 312, 469
Rolling–sliding wear 351
Rolling texture 455

Scanning infrared microscopy 703
Scanning transmission electron microscopy 572
Scanning tunnelling microscopy 85
Schottky barrier diodes 1215
Schottky barriers 1210
Sea water 159
Secondary austenite 276
Secondary recrystallisation 450
Selforganised growth 820
Selfpropagating high temperature synthesis 1315
Selfsustaining reaction synthesis 1301
Semiconductor band structures 835
Semiconductor characterisation 1074
Semiconductors 66, 72
AlGaAs/GaAs 1083
AlN 1187
arsenic doping 396
carbon doped GaAs 1083
CdS 54
CdTe 54
(Cd,Zn)S 54
(Cd,Zn)Se 54
(Cd,Zn)Te 54
compounds, III–V 657
crystalline organic semiconductors (PTCDA, Alq), 845
GaAs 820
GaInAsP/GaAs 3
group III–V nitrides 3
heterojunctions, III–V 41
(Hg, Mn) Te 54
(Hg, Zn) Te 54
InGaAs/AlAs 50
(In, Ga)(As, P) 54
InGaAs/GaAs 840
InGaAs/InP 827
InP 1223
InTiSb 3
IrSi 1215
low temperature silicon oxide 1219
magnetic Czochralski silicon 665
SiGe 54, 389, 396, 407, 410, 416, 421 425, 429, 1060, 1065
silicon 36, 85, 90, 400, 407, 657, 670, 676, 680 685, 691, 696, 703, 707, 711, 1060, 1194, 1210
silicon nitride 36
strained layer semiconductors 835
TiN 1210
TiSi 1210
ZnTe 54
Semi-insulators
InP 1203
polysilicon 85, 1207
polysilicon oxygen doped silicon 80
Sequential oxidation 186
Seraphin coefficient interference 416
Shape deformation 109
Shear moduli of ferrite and austenite 1110
Sheet 538
Shot peening 967
Sialons 1093
Silane only chemical vapour deposition 31
Silica 629, 863
Silicon 441, 1035
Silicon carbide 213, 222, 299, 589, 643, 741, 753, 1093, 1156, 1301
Silicon carbide whiskers 529
Silicon modification 259
Silicon nitride 1093, 1295
Silver 643
Simulation 72, 1191
Single crystal superalloys 1253
Single crystal weld 939
Sintered steels 351
Slip band 921
Slippage 312
Slip systems 455
Solidification 136, 181, 533, 538, 933, 939, 1099
Solid–liquid condition 926
Solid phase sintering 650
Solid phase sintering kinetics 650
Solid solubilities 1312
Solute carbon 1139
Solute nitrogen 1139
Spacing measurements 1241
Spectrum analysis 264
Spheroidal graphite irons 901
Spheroidisation 566
Spray casting 237
Steady state 1147
Steels 264, 322, 717, 853, 977, 1315
bearing steels 566
carbon–manganese steels 548, 557, 572
cast steels 787
C steels 994
C–0·6Cr steels 787
C–Mn steels 1046
C–Mn–Ni steels 759
12Cr–Mo–V steels 579
34Cr–4Mo steels 810, 1052
duplex stainless steels 276
high strength low alloy steels 474
interstitial free steels 1261
low alloy steels 186, 874, 1116, 1267
low alloy structural steels 508
low carbon steels 1139
low carbon, low alloy triphase steels 499
maraging steels 1281
microalloyed steels 252, 469, 883
mild steels 619, 1180
molybdenum steels 351
niobium steels 557
SAE 52100 566
stainless steels 181, 268, 276, 375, 383, 461, 488, 799, 939, 985, 998, 1129, 1180, 1275
ultrahigh boron steels 112

070M20 759
1018 600
1045 520
300M 245, 335
304 600
4130 595
4330 259
Stoichiometry 100, 209
Strain 66, 72, 389, 600
Strained epitaxy 429
Strain energy in iron 1110
Strain induced mechanical stabilisation 1116
Strain path 1104
Strain relaxation 840
Stranski–Krastanov growth 425
Strength 1312
Strengthening 499
Strengthening mechanisms 791
Stress measurements 1219
Stress relaxation 557
Strip casting 181, 461
Structure formation 1052
Substrate/coating interface structure 961
Substrate–coating thermal interaction 810, 1052
Superconductors 46
Superlattices 97, 389
Superplasticity 1295
Surface coating 619
Surface composites 299, 520, 589
Surface modification 619
Surface reconstruction 820
Surface structure 85
Surface tension 1310
Synthesis 650
σ phase 268

Tantalum carbides 100
Taylor simulation 455
Temperature dependence 1253
Temperature history 383
Tempering 883
Tensile failure 595
Tensile properties 994
Ternary eutectic 136
Texture 461, 985, 1281
Thermal analysis 150
Thermal annealing 1223
Thermal expansion 515
Thermal fatigue 538
Thermal shocks 605
Thermal stress 228
Thermodynamic data 1301
Thermodynamics 186, 874
Thermoelastic accommodation 105
Thermomechanical processing 1261
Thick metallic coatings 1169
Thin films 46
Thin film transistors 1207
Time resolved photoluminescence 1079
Tin 136, 1169
Tin–cadmium alloys 1233
Titanium 383, 1083, 1207
Titanium alloys 347, 611, 729, 1156
Titanium aluminides 143, 150, 1147
Titanium carbide 97, 520, 1315
Titanium diboride 1301
Torsion 1104
Toughness 529
Toughness correlation 252
Transformation mechanism 1116
Transformation plasticity 1116
Transient liquid phase bonding 304, 363, 643
Transition metal carbides 100, 209, 329
Transmission electron microscopy 54, 66, 729, 914, 961
Transport 827
Transverse cracking 474
Tribology 589
Tungsten carbide 209
Tungsten carbide–cobalt coatings 810, 961, 1052
Twinning 441
Twin roll casting 741
Twins 914

Undercooling measurements 1241
Upper bainite and finite mixed structure 994
Upsetting 357

Vacuum brazing 949
Vanadium 883, 893
Vanadium carbide 100
Velocity effects 1180

Wafer cleaning 90
Wafer homogeneity 1223
Wear 351, 787, 799
Wear materials 1315
Wear resistance 515, 589
Wear resistant coatings 299, 961
Welding 200, 600
Weldments 1267
Weld metal 276, 759, 939, 1046, 1267
Weld microstructure 186
Wide gap brazing 949, 955, 1041
Widmanstätten ferrite 1110
Wire breaks 1139
Wire drawing 1139
Wire rod 1139
Workability 1312

X-ray diffraction 50, 72
X-ray microanalysis 400
X-ray photoelectron spectroscopy 711

Yield strength 1253
Yttria 1129
Yttrium–barium–copper–oxygen system 1301

Zinc alloys 870
Zirconia 130, 529
Zone annealing 450